Social Security Administration Analytics Center of Excellence

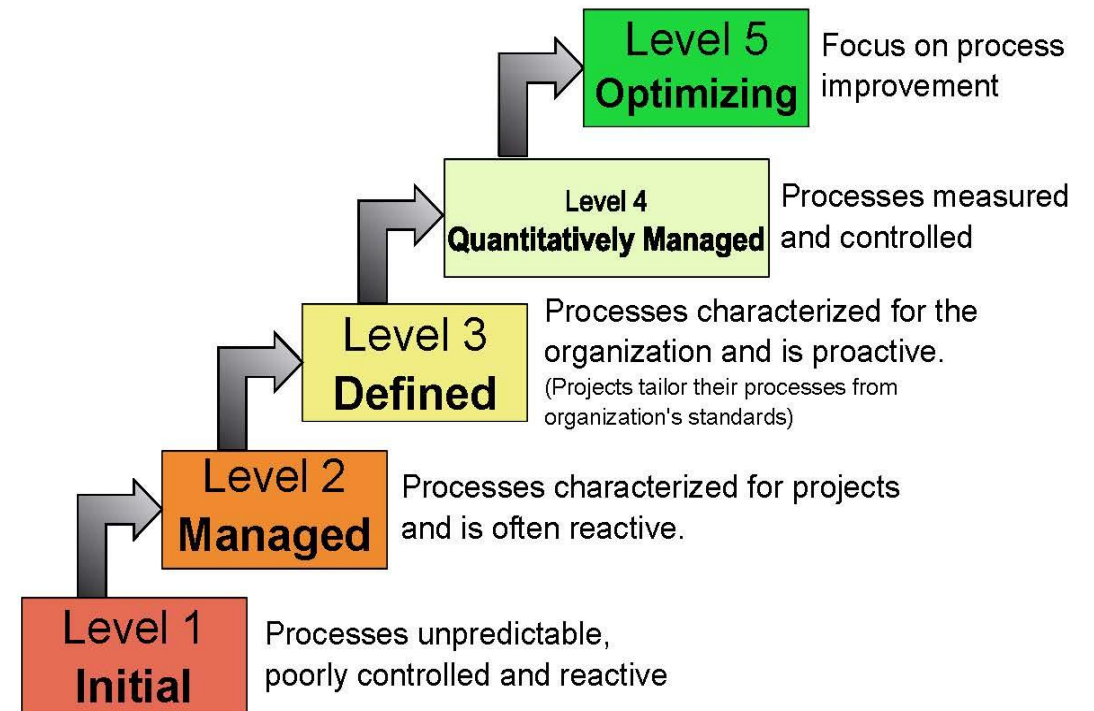Advanced Analytics Capability Maturity Model (A^{2}CM^2)

February 6, 2020

OMB Guidance on Data Maturity

- OMB stipulates Data Maturity Assessments allow an organization to:
  - evaluate itself against documented best practices,
  - determine gaps, and
  - identify areas to prioritize for improvement.
- OMB requires Data Maturity Assessments to analyze agency policies, procedures, and operations related to data and data infrastructure, including
  - data governance, data management,
  - data culture, data systems and tools,
  - data analytics, staff skills and capacity,
  - resource capacity, and
  - compliance with law and policy.
- And that the results of a maturity assessment feed into the data governance and management processes to
  - inform investment decisions and
  - to prioritize subsequent actions.

Characteristics of the Maturity levels

Level 5 Optimizing — Focus on process improvement

Level 4 Quantitatively Managed — Processes measured and controlled

Level 3 Defined — Processes characterized for the organization and is proactive. (Projects tailor their processes from organization's standards)

Level 2 Managed — Processes characterized for projects and is often reactive.

Level 1 Initial — Processes unpredictable, poorly controlled and reactive

☐ The data maturity selection should be based on the current state of data management activities. It is recommended that agencies select a model that allows for the expansion of successful organizational practices.

☐ Available resources may help decide between conducting a self-assessment or hiring an independent assessor.

☐ Organizations may need to decide between a free, commercial or customized model

- Examples:
  - Free: Federal Data Maturity Model
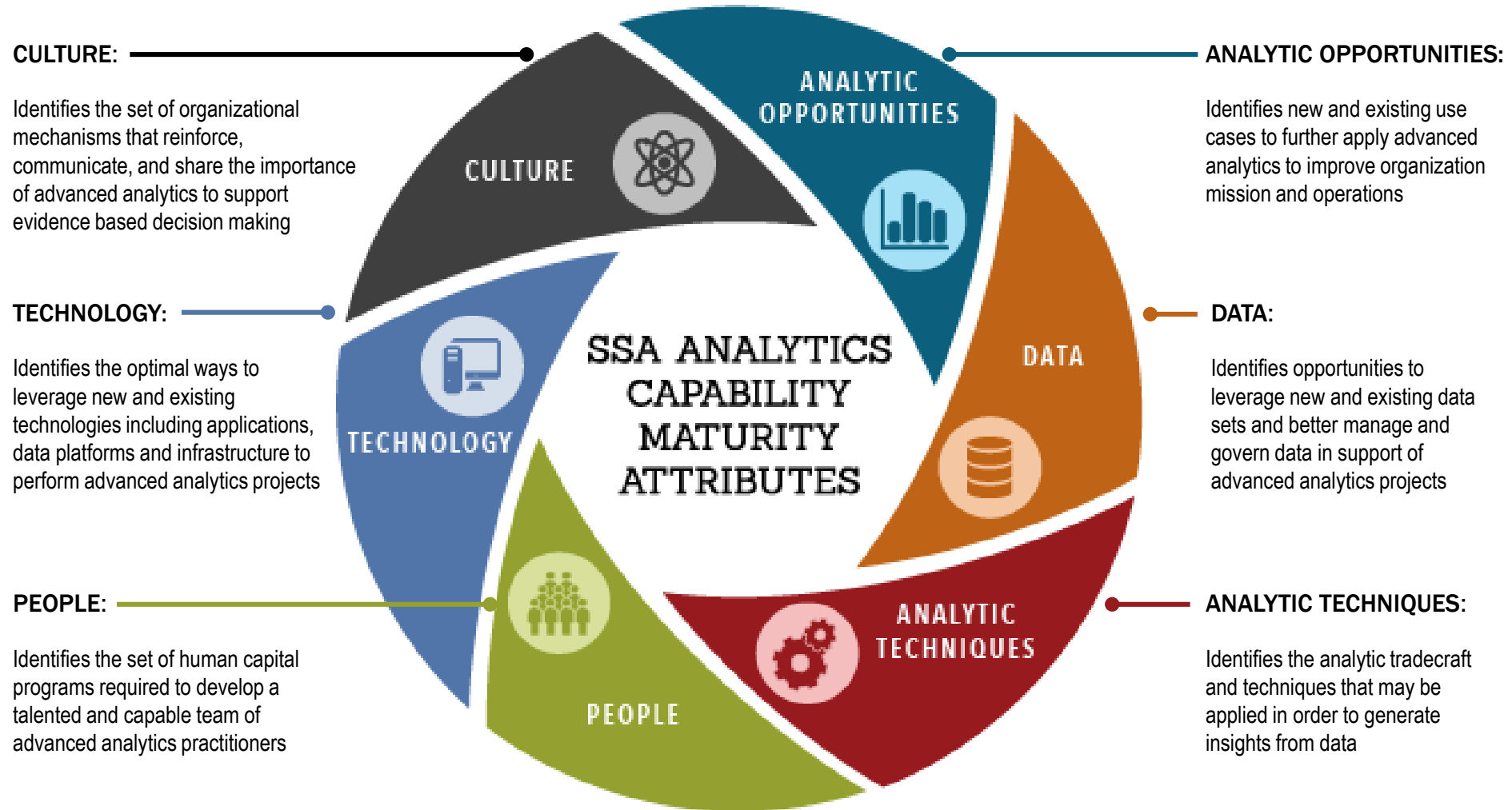 - Commercial: Data Management Maturity (CMMI) and DAMA

We reviewed analytics maturity models to determine which attributes should be included in an SSA model and developed a unique model for SSA

Analytics Capability Maturity Models	People	Process	Technology	Data	Analytics	Culture
Carnegie Mellon University Institute Data Management Maturity Model (DMM)		✓	✓	✓		
Federal Enterprise Architecture – Data Reference Model (FEA-DRM)		✓	✓	✓		
Cross Industry Standard for Data Mining (CRISP-DM)		✓	✓	✓	✓	
Gartner Business Intelligence Model	✓	✓				✓

Because none of the maturity models reviewed address all critical areas of capability development, ACE developed a maturity model specifically for SSA

	People	Process	Technology	Data	Analytics	Culture
SSA Analytics Capability Maturity Model	✓	✓	✓	✓	✓	✓

SSA Analytics Capability Maturity Attributes

CULTURE:

Identifies the set of organizational mechanisms that reinforce, communicate, and share the importance of advanced analytics to support evidence based decision making

TECHNOLOGY:

Identifies the optimal ways to leverage new and existing technologies including applications, data platforms and infrastructure to perform advanced analytics projects

PEOPLE:

Identifies the set of human capital programs required to develop a talented and capable team of advanced analytics practitioners
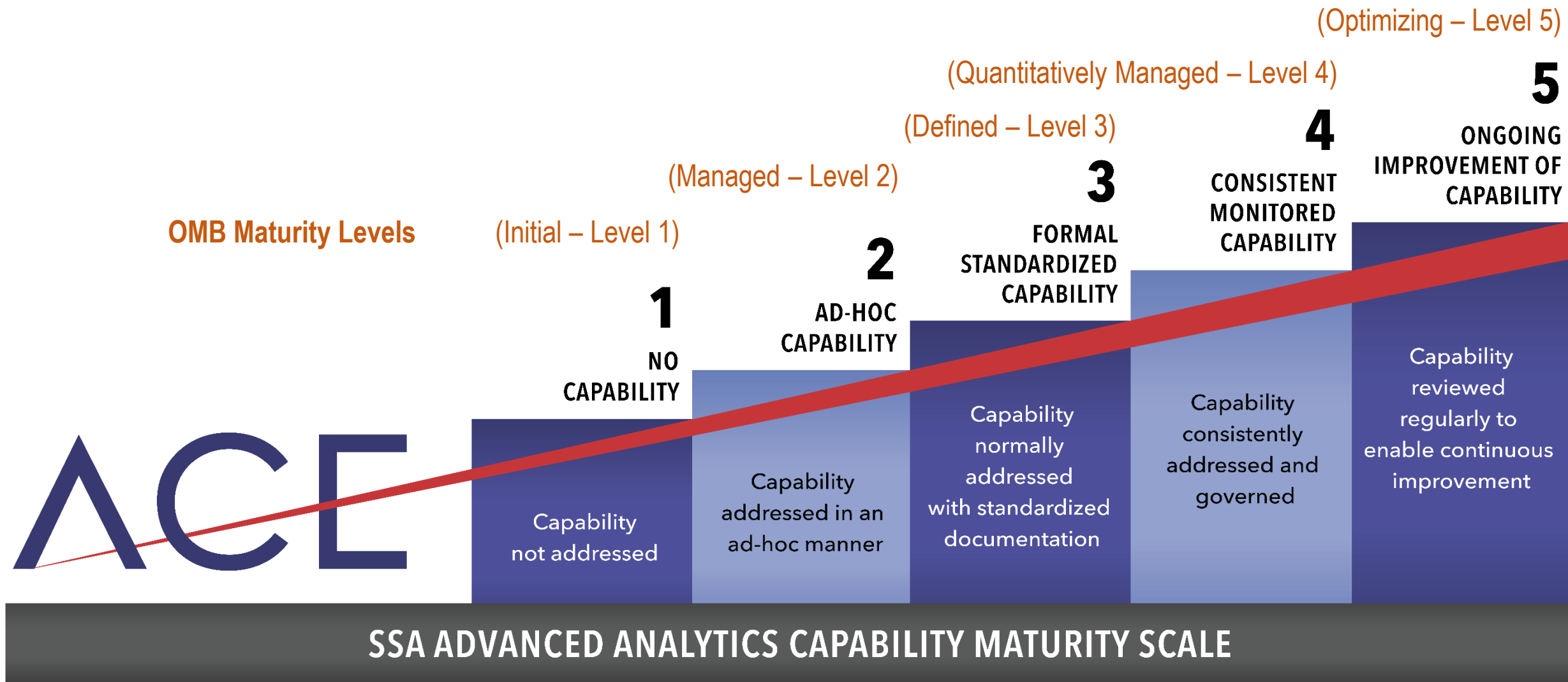
ANALYTIC OPPORTUNITIES:

Identifies new and existing use cases to further apply advanced analytics to improve organization mission and operations

DATA:

Identifies opportunities to leverage new and existing data sets and better manage and govern data in support of advanced analytics projects

ANALYTIC TECHNIQUES:

Identifies the analytic tradecraft and techniques that may be applied in order to generate insights from data

ADVANCED ANALYTICS CAPABILITY MATURITY MODEL (A²CM²)

ATTRIBUTES

ANALYTIC OPPORTUNITIES
Identifies new and existing use cases to further apply advanced analytics to improve organization mission and operations

DATA
Identifies opportunities to leverage new and existing data sets and better manage and govern data in support of advanced analytics projects

ANALYTIC TECHNIQUES
Identifies the analytic tradecraft and techniques that may be applied in order to generate insights from data

PEOPLE
Identifies the set of human capital programs required to develop a talented and capable team of advanced analytics practitioners

TECHNOLOGY
Identifies the optimal ways to leverage new and existing technologies including applications, data platforms, and infrastructure to perform advanced analytics projects

CULTURE
Identifies the set of organizational mechanisms that reinforce, communicate, and share the importance of advanced analytics to support evidence-based decision making

CATEGORIES

ANALYTIC OPPORTUNITIES: DEVELOP OPPORTUNITIES | MANAGE PROJECTS | EXECUTE SOLUTIONS

DATA: DATA MANAGEMENT | DATA OPERATIONS | DATA QUALITY

ANALYTIC TECHNIQUES: DATA PREPARATION & MANIPULATION | ANALYTIC TRADECRAFT

PEOPLE: TALENT DEFINITION | TALENT RECRUITMENT | TALENT PLACEMENT | TALENT DEVELOPMENT

TECHNOLOGY: PLANNING & DEVELOPMENT | INFRASTRUCTURE | DATA MANAGEMENT | ANALYTICS SERVICES & INTERACTION | HUMAN INSIGHTS & ACTIONS

CULTURE: ENGAGEMENT | ORGANIZATIONAL ENABLERS

SUBCATEGORIES

DEVELOP OPPORTUNITIES: OPPORTUNITY IDENTIFICATION | OPPORTUNITY SELECTION
MANAGE PROJECTS: PROJECT PORTFOLIO | PROJECT RESOURCES | PROJECT REVIEW | PROJECT VALIDATION
EXECUTE SOLUTIONS: SOLUTION IMPLEMENTATION | SOLUTION EVALUATION

DATA MANAGEMENT: DATA MANAGEMENT STRATEGY | DATA GOVERNANCE MODEL | DATA REQUIREMENTS LIFECYCLE | DATA STANDARDS & PROCEDURES
DATA OPERATIONS: DATA ACCESS | DATA COLLECTION | DATA SOURCING | DATA PERSISTENCE
DATA QUALITY: DATA QUALITY FRAMEWORK | DATA QUALITY ASSURANCE

DATA PREPARATION & MANIPULATION: ORGANIZE STRUCTURED DATA | ORGANIZE UNSTRUCTURED DATA
ANALYTIC TRADECRAFT: DATA ANALYSIS | DATA VISUALIZATION | REPORTING AND DISTRIBUTION

TALENT DEFINITION: ROLE DEFINITION | POSITION REQUIREMENTS
TALENT RECRUITMENT: ATTRACTING TALENT | SOURCING TALENT | HIRING TALENT
TALENT PLACEMENT: WORKFORCE PLANNING | WORKFORCE MANAGEMENT | WORKFORCE DESIGN
TALENT DEVELOPMENT: TALENT MANAGEMENT STRATEGY | CAREER DEVELOPMENT | PERFORMANCE MANAGEMENT | RETENTION STRATEGIES

PLANNING & DEVELOPMENT: ANALYTICS TECHNOLOGY STRATEGY | PLANNING REVIEW | TECHNOLOGY RESEARCH | INTERNAL DEVELOPMENT | PURCHASING NEW TOOLS | IMPLEMENTATION & DEPLOYMENT | MAINTENANCE & SUPPORT
INFRASTRUCTURE: PHYSICAL RESOURCES | RESOURCE ABSTRACTION | CORE SERVICES
DATA MANAGEMENT: DATA REPOSITORY | DATA SOURCES
ANALYTICS SERVICES & INTERACTION: ANALYTICS SERVICES | TOOLS & SOFTWARE
HUMAN INSIGHTS & ACTIONS: VISUALIZATION TOOLS | INTERFACES

ENGAGEMENT: COMMUNICATIONS | MARKETING & BRANDING | LEADERSHIP | RECOGNITION
ORGANIZATIONAL ENABLERS: STRUCTURAL MECHANISMS | POLICIES & PROCEDURES | COMMUNITY | LEARNING

Each attribute and subcategory has five evidence-based levels of maturity- ranging from no capability to continuous improvement

OMB Maturity Levels

(Initial – Level 1)
(Managed – Level 2)
(Defined – Level 3)
(Quantitatively Managed – Level 4)
(Optimizing – Level 5)

1 NO CAPABILITY
Capability not addressed

2 AD-HOC CAPABILITY
Capability addressed in an ad-hoc manner

3 FORMAL STANDARDIZED CAPABILITY
Capability normally addressed with standardized documentation

4 CONSISTENT MONITORED CAPABILITY
Capability consistently addressed and governed

5 ONGOING IMPROVEMENT OF CAPABILITY
Capability reviewed regularly to enable continuous improvement

SSA ADVANCED ANALYTICS CAPABILITY MATURITY SCALE

The A^{2}CM^2 has four key parts – attributes, categories, subcategories, and levels of maturity

How to use the Model

① Overarching Maturity Model

Attributes with definitions – the six main categories that must be covered to build an analytics capability with definitions in the row below that describe what each of these attributes includes and why they are important

Categories – these are the areas in which the organization's maturity is assessed and explained, typically including 2-6 sub-categories

Sub-Categories – the smallest of elements, each of these subcategories represents an area in which the organization should seek maturity

② Attribute Slides

Categories with definitions – The same categories that appeared on the overarching maturity model reappear on the attribute slides with their specific definitions

Sub-categories with definitions – Just like the categories, these subcategories all appeared on the overarching maturity model, but here they are presented with their definitions

③ Levels Slides

Categories and **subcategories** - appear on the left hand side in alignment with the overarching maturity model and the attribute slides

Levels – for each subcategory, there are five levels of maturity (1-5). Not pictured here is the N/A option (not applicable) which is relevant for sub-organizations with no responsibility in certain areas

④ Explanation of the Levels – for each of the subcategories there are 5 levels of maturity that mostly align to the following descriptions

Level 1	Level 2	Level 3	Level 4	Level 5
The sub-category has not been addressed	The sub-category has been addressed in an ad hoc manner	The sub-category has been addressed formally	The sub-category is consistently addressed and its use is governed	The sub-category is reviewed regularly to enable continuous improvement

Most difficult progression (Level 2 to Level 3) and requires largest number of resources

Progressing from Level 4 to Level 5 may require increased efficiency not resources

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Enterprise Responsibility within A^{2}CM^2

- Most maturity levels can be achieved by a component individually, but there some levels which must be handled by the enterprise/agency as a whole

- Following this logic, certain maturity levels within the A^{2}CM^2 were designated as "enterprise" levels, meaning that components were not responsible, nor able to achieve those levels of maturity

- Enterprise levels are indicated on the scorecard with gray shading

CATEGORY	SUBCATEGORY	CUR.
ANALYTIC OPPORTUNITIES — Develop Opportunities	Opportunity Identification	3
	Opportunity Selection	1
Manage Projects	Project Portfolio	1
	Project Resources	2
	Project Review	1
	Project Validation	2
Execute Solutions	Solution Implementation	1
	Solution Evaluation	1
DATA — Data Management	Data Management Strategy	1
	Data Governance Model	1
	Data Requirements Lifecycle	1
Data Operations	Data Standards and Procedures	2
	Data Access	1
	Data Collection	1
	Data Sourcing	3
	Data Persistence	2
Data Quality	Data Quality Framework	2
	Data Quality Assurance	2
ANALYTIC TECHNIQUES — Data Preparation and Manipulation	Organize Structured Data	3
	Organize Unstructured Data	3
Analytic Tradecraft	Data Analysis	3
	Data Visualization	2
	Reporting and Distribution	3
PEOPLE — Talent Definition	Role Definition	1
	Position Requirements	1
Talent Recruitment	Attracting Talent	1
	Sourcing Talent	1
	Hiring Talent	1
Talent Placement	Workforce Planning	1
	Workforce Management	1
	Workforce Design	2
Talent Development	Talent Management Strategy	1
	Career Development	1
	Performance Management	1
	Retention Strategies	1

CATEGORY	SUBCATEGORY	CUR.
TECHNOLOGY — Planning and Development	Analytics Technology Strategy	N/A
	Planning Review	1
	Technology Research	2
	Internal Development	1
	Purchasing New Tools	1
	Implementation/ Deployment	1
	Maintenance/ Support	1
Infrastructure	Physical Resources	N/A
	Resource Abstraction	N/A
	Core Services	N/A
Data Management	Data Repository	2
	Data Sources	2
Analytics Services and Interaction	Analytics Services	2
	Tools and Software	2
Human Insights and Actions	Visualization Tools	2
	Interfaces	1
CULTURE — Engagement	Communications	1
	Marketing and Branding	1
	Leadership	1
	Recognition	1
Organizational Enablers	Structural Mechanisms	1
	Policies and Procedures	1
	Community	1
	Learning	3

KEY

Subcategory — *Current Maturity Score*

| Solution Implementation | 3 |
| Project Resources | 2 |

In selected subcategories, only an enterprise-wide function or body can achieve the given level. Enterprise-only levels are indicated in grey.

Enterprise Maturity Level
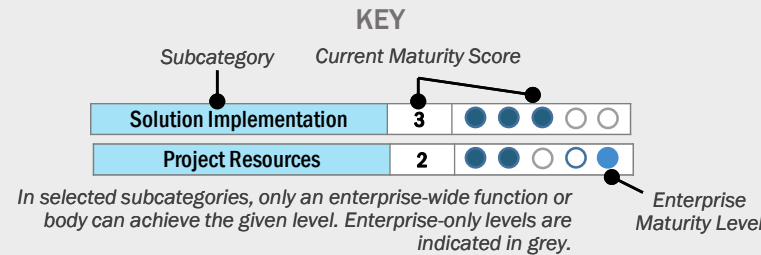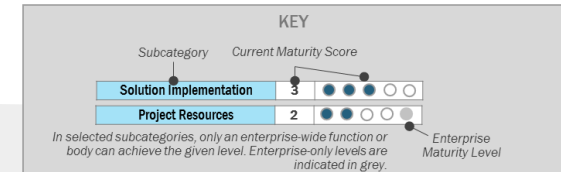
- For quick high-level assessments – the attribute-level scoring guide, summarized from the A2CM2, can be used to take a rapid point in time snapshot of the agency or a component

  - For quick high-level assessments – Survey Tool

- For repeated measurement – the self-assessment tool, a macro-enabled Excel tool, allows components to interact with the A^2CM^2 and score themselves, by clicking through our guided model (built right into Excel).

  - The A^2CM^2 Self-Assessment tool is available at the ACE website - http://ace.ssahost.ba.ssa.gov/MaturityAssessment/

Sample Advanced Analytics Roadmap
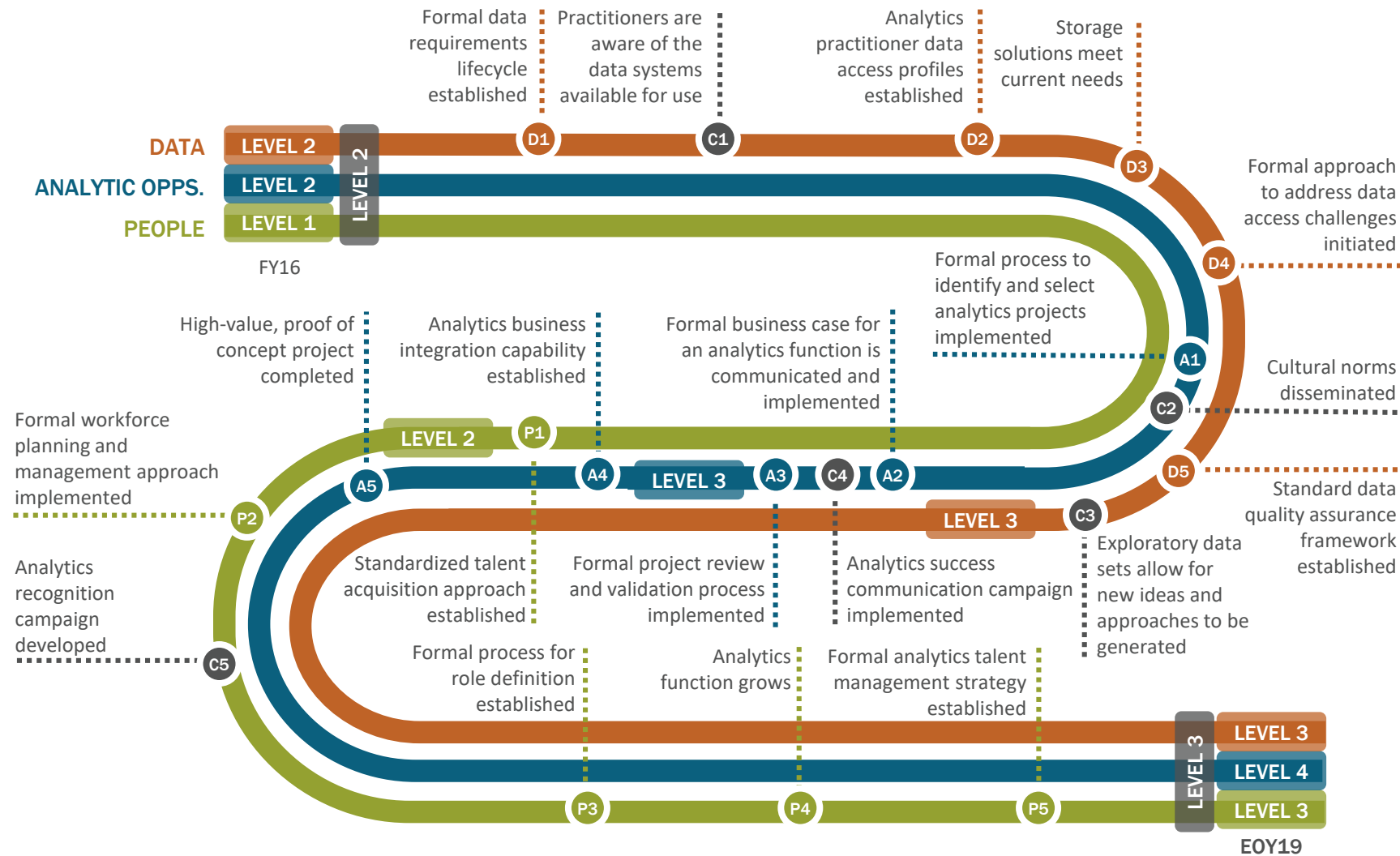
Analytic Opportunities

Identifies new and existing use cases to further apply advanced analytics to improve organization mission and operations

CATEGORY	DEFINITION	SUBCATEGORY	DEFINITION
Develop Opportunities	The identification and selection of advanced analytic opportunities, which will result in business process improvements, system enhancement proposals, policy modifications, or increased operational effectiveness and efficiency	**Opportunity Identification**	The process by which an organization solicits cases for advanced analytics, first by evaluating critical success factors, and then by identifying projects which can address any gaps in the organization's performance
		Opportunity Selection	The mechanisms for reviewing and choosing advanced analytics projects, to include the process to develop and refine criteria for advancement, the process to narrow opportunities to pursue as projects, and the metrics to evaluate the likely return on investment
Manage Projects	The approach used to review, govern, oversee, and authenticate advanced analytics projects in alignment with the organization's goals and objectives	**Project Portfolio**	The approach by which the range and collection of proposed, on-going, and future projects is reviewed holistically to determine relevance (to the organization's goals), relatedness (to other advanced analytics projects), impact (to the organization's capabilities and needs), and risk
		Project Resources	The process (business case) by which an organization invests time, money and people in advanced analytics projects, the evaluation of business benefits, and the allocation of time, money and people as needed for the portfolio of projects
		Project Review	The project management and oversight of advanced analytics projects including initiating, planning, executing, controlling, and closing of analytics projects to achieve specific goals and meet specific success criteria monitored through the duration of the project
		Project Validation	The process by which to validate the multiple stages of an ongoing advanced analytics project. Validation may include internal and external validity checks, sample analysis, and review of model assumptions. Project validation may be similar to an academic peer-review process.
Execute Solutions	The methods by which solutions are measured, implemented and examined over time	**Solution Implementation**	The processes for the production and integration of analytics solutions into business operations. Processes may include planning, transfer of ownership, and training of end users.
		Solution Evaluation	The processes to review solutions against success criteria, document lessons learned, consider opportunities for analytic enhancements, and discuss additional applicability to create scalable advanced analytics

Analytic Opportunities

Identifies new and existing use cases to further apply advanced analytics to improve organization mission and operations

CATEGORY	SUB-CATEGORY	Level 1	Level 2	Level 3	Level 4	Level 5
Develop Opportunities	**Opportunity Identification**	A process to solicit or recognize potential advanced analytics opportunities does not exist	Leaders solicit or initiate discussion of opportunities on a periodic basis, often due to external drivers	A process for both leaders and staff to review potential opportunities that occurs on a regular basis	Opportunities to improve the advanced analytics of the organization are solicited and recognized in a standard and repeatable process	Process to solicit and recognize opportunities is reviewed for internal consistency, external impact, efficiency, and quality of opportunities identified
	Opportunity Selection	Selection criteria do not exist	Selection criteria are developed in conjunction with opportunity OR selection criteria result in poor opportunity selection	Established selection criteria exist, but are applied inconsistently	Selection criteria are applied consistently and result in superior opportunity selection AND selection criteria are standardized	Selection criteria are reviewed and refined following project close out, in conjunction with identification, and are shared and replicated across the organization
Manage Projects	**Project Portfolio**	Past, current, and future projects are managed, viewed, or resourced on an individual basis (no holistic approach to advanced analytics projects)	Simultaneous advanced analytics projects are managed and resourced due to time or resource constraints OR multiple project connections (results) are communicated *ex post facto*	Opportunity development, project evaluation, experiences from past projects, and identified needs inform the collective view and execution of analytics projects AND are integrated as part of selection and evaluation	The portfolio of projects is managed and resourced as a holistic function enterprise-wide, with established processes and oversight	Advanced analytics projects portfolio includes a robust pipeline of opportunities, no overlap in projects, and efficiencies to ensure economies of scale, all of which are regularly reviewed and refined as needed
	Project Resources	Approaches for the management and tracking of resources (e.g., people, funding, technology) for advanced analytics projects do not exist	For each opportunity, the process to manage resources is conducted differently OR management of resources is incongruent with current and future needs	Resources are identified and made available for analytics projects in a standard process, which utilizes a business case	Resource information is standardized and tracked enterprise-wide AND resource management may inform opportunity selection, portfolio management, and evaluation	A centralized resource management hub proactively manages and deploys project resources to gain efficiencies and optimize resource alignment to opportunities
	Project Review	Methods to review advanced analytics projects do not exist	Project review occurs only in case of failure or external drivers OR when project review occurs, inconsistent metrics are used	Policies, procedures, and metrics exist to review projects in a regular and repeatable way	Project review criteria are well defined, communicated, and enforced as part of a formal step in the project lifecycle	Project review occurs continuously throughout the process, with ongoing monitoring of success metrics to enable improvement
	Project Validation	Processes to test and to validate analytics projects do not exist	Project validation is introduced in only high-risk projects OR review is introduced at the wrong times OR the review is not thorough OR are applied inconsistently	Repeatable processes for project validation are part of the advanced analytics project lifecycle.	Standardized tests and controls are introduced consistently as part of the advanced analytics project lifecycle, and the results of the validation step are part of the governance process for analytics review	Advanced analytics project validation is part of the formal advanced analytics project lifecycle, validation improvement is continuously reviewed, processes updated, and results incorporated back into the project lifecycle

Analytic Opportunities

Identifies new and existing use cases to further apply advanced analytics to improve organization mission and operations

CATEGORY	SUB-CATEGORY	Level 1	Level 2	Level 3	Level 4	Level 5
Execute Solutions	**Solution Implementation**	Practices to implement solutions do not exist	Solution implementation is not considered prior to analytics project design, and must be retroactively fit into ongoing operations	The post-solution implementation of advanced analytics occurs, but there is no formal advance planning for implementation	Solution implementation occurs in a repeatable and standardized way, with lessons learned informing solution management and planning	Solution implementation is reviewed as part of the solution evaluation and engages stakeholders throughout the process
	Solution Evaluation	Methods to evaluate solutions do not exist OR evaluation metrics are incorrect	Evaluation occurs only in cases of solution failure or external drivers OR basic metrics (e.g., Have deadlines been met?) are used	Evaluation criteria are standardized, but may be applied inconsistently	Evaluation criteria inform the success and communication of the solution, as well as future opportunity identification	Evaluation criteria are congruent across the organization and are refined as priorities change AND solutions are reviewed regularly to document lessons learned and identify additional applicability

		Data	Identifies opportunities to leverage new and existing data sets and better manage and govern data in support of advanced analytics projects

CATEGORY	DEFINITION	SUBCATEGORY	DEFINITION
Data Management	The establishment and supervision of how data is managed, organized, and governed in the organization; including goals, oversight structures and formalized processes to support ongoing data management	**Data Management Strategy**	The goals, objectives, and regular processes for prioritizing data management across the organization
		Data Governance Model	The framework and processes used to maintain, control, monitor and protect the use of data by individuals and applications
		Data Requirements Lifecycle	The processes of identifying, analyzing and verifying the business and operational requirements for data including how the logical and physical architectural components are implemented
Data Operations	The administration of data related business practices (harvesting, acquiring, storing and transforming data) in order to ensure the highest level of efficiency within the organization (correct format, location, accessibility, etc.)	**Data Standards and Procedures**	The existing policies, requirements and structure for all aspects of data operations including data flow, data duration, data metrics, business ontologies, and change management
		Data Access	The processes and policies for requesting, granting, and monitoring access to data from primary and secondary information systems
		Data Collection	The methods by which data is accessed, captured, harvested, loaded, and formatted to support advanced analytics activities in alignment with privacy and security controls
		Data Sourcing	The processes for acquiring data from external partners, managing agreements, and interacting with suppliers. This may include sourcing requirements, procurement, and provider management
		Data Persistence	The methods by which data is aggregated, persisted, matched, formatted, and stored to support advanced analytics activities
Data Quality	The processes, criteria, and approaches used to ensure the delivery of consistent, accurate, complete, and timely data to end user applications across the enterprise	**Data Quality Framework**	The formal structures and processes used to ensure and measure the delivery of consistent, accurate, complete, and timely data to users across the organization
		Data Quality Assurance	The regular systematic processes of determining whether data meets specified requirements of quality to support underlying business needs involving a combination of methodologies, processes, and business rules to measure and analyze quality

Data

Identifies opportunities to leverage new and existing data sets and better manage and govern data in support of advanced analytics projects

CATEGORY	SUB-CATEGORY	Level 1	Level 2	Level 3	Level 4	Level 5
Data Management	**Data Management Strategy**	A data management strategy does not exist	Data management strategy may be defined for some of the organization or has been developed for small advanced analytics projects	A formal data management strategy exists for the entire organization	A data management strategy exists and is developed in alignment with stated business objectives	A data management strategy is maintained AND implementation is continuously reviewed to identify opportunities for improvement
	Data Governance Model	**Structures to govern data management practices do not exist**	**A structure for the governance of data management practices exists, but roles are not defined, processes are ad hoc, and metrics are inconsistent**	**A formal data governance model exists, including structures, roles, processes, mechanisms, and metrics**	**A data governance model exists, is compliant with regulations, and is monitored/enforced by an enterprise-wide body**	**An enterprise-wide data governance model is continuously adjusted based on strategy, regulatory requirements, and performance metrics**
	Data Requirements Lifecycle	Processes for data requirements collection do not exist	Data requirements are collected to meet immediate needs OR data requirements collection is inconsistent	Formal processes for data requirements collection exists OR data requirements are collected proactively	Standardized process for data requirements collection exists AND requirements are developed as part of future planning	Data requirements lifecycle is reviewed regularly and refined as needed to plan for data requirements over a multi-year timeframe
Data Operations	**Data Standards and Procedures**	Data is compliant with formal policy (e.g., privacy, security) but definitions and rules related to the use of data do not exist	Data may be defined in a data dictionary and model, but the rules related to the use of data do not exist OR are not applied in compliance with formal policy	Data format is standardized AND the organization has formal processes or standards for data updates, data description, and data exchange formats	A comprehensive set of data standards is enforced across the enterprise, including format and exchange standards	Data standards create ease of data exchange (with common definitions) AND are reviewed regularly to identify opportunities for enhancement
	Data Access	Data access is highly restricted AND there are no clear data access processes	Data access is granted ad hoc across the organization OR data access processes or polices are inconsistently applied	Data access includes a formal request process and access is governed by a comprehensive organization-wide data access policy	Data access is broadly defined across the enterprise and monitored for security concerns	Data access is reviewed regularly to ensure that data is as accessible as possible while securing critical information
	Data Collection	Data collection is not performed in consideration of advanced analytics needs	Data collection for advanced analytics is performed due to project failure or external driver AND processes for collecting data exist but are ad hoc	Formal processes to access and capture data exist and data collection are proactively managed and planned for in compliance with privacy and security concerns	Data collection is governed and managed AND data requirements are considered as part of the collection planning process	Data collection is conducted in alignment with the data management strategy in advance of business needs and supported by automated processes (e.g., ETL), which are continuously improved
	Data Sourcing	Processes for sourcing data do not exist	Data is sourced/harvested to meet immediate needs (reporting, external requests, etc.) AND there is no consistent process for developing service-level agreements (SLAs)	Data sources are reviewed regularly and proactively AND there is a standard process for developing SLAs	Data sourcing/harvesting is integrated into future planning of business needs AND data sourcing providers are actively managed to ensure quality	Continuous identification and evaluation of current and potential data sources to improve advanced analytics in support of business needs
	Data Persistence	Data persistence processes do not consider advanced analytics needs	Data storage format in systems reflects short-term needs such as reporting requirements or external requests OR data formatting is done manually and inconsistently	Format in which data is stored is designed to meet ongoing business needs and proactively plan for future requirements AND data munging is done in preparation for analytics activities	Data is stored in a format to meet the broadest advanced analytics needs, often prior to the articulation of specific needs	Data is formatted and stored in systems to meet the broadest advanced analytics needs AND the organization continuously evaluates processes to better support its advanced analytics needs

Data						
		Identifies opportunities to leverage new and existing data sets and better manage and govern data in support of advanced analytics projects				
CATEGORY	SUB-CATEGORY	Level 1	Level 2	Level 3	Level 4	Level 5
Data Quality	Data Quality Framework	There is no process to assess data quality	The data quality assessment process occurs inconsistently OR irregularly throughout the data lifecycle OR the criteria for data quality are inconsistent	There is a regular and standardized data quality assessment process with formalized data quality criteria	Formal data quality framework exists, is consistent, and is governed	There is a continuous process with standardized criteria for assessing data quality that is refined and improved regularly
	Data Quality Assurance	There is no process for addressing data quality issues	After being identified, data quality issues are considered on an ad hoc basis AND action is only taken when required or due to an external driver OR inspection is performed inconsistently	Data quality issues are considered AND there is a formal process/criteria for how/if to take action	Data quality issues are considered regularly to ensure data is suitable for the intended purpose OR ongoing data quality is assured by consistently eliminating mistakes	Data quality issues are continuously considered in alignment with the goal to ensure that data is suitable for the intended purpose AND data quality is assured by reviewing pre-production data to ensure it is fit for purpose and right the first time

Analytic Techniques

Identifies the analytic tradecraft and techniques that may be applied in order to generate insights from data

CATEGORY	DEFINITION	SUBCATEGORY	DEFINITION
Data Preparation and Manipulation	The organizing of structured and unstructured data to support the analytical model, and evaluation of those support capabilities relative to analytical and operational requirements	**Organize Structured Data**	The processing of structured data to support advanced analytics activities, including searching, selecting, building attributes, associating, characterizing, classifying, predicting, clustering, explaining, and discovering patterns of data
		Organize Unstructured Data	The processing of unstructured data to support advanced analytics activities, including searching, selecting, building attributes, associating, characterizing, classifying, predicting, clustering, explaining, and discovering patterns of data
Analytic Tradecraft	The analytic, visualization, and reporting techniques of the organization in support of data-driven decisions or actions	**Data Analysis**	The process of examining unstructured or structured data to describe, discover, explain, predict, and advise. Methods include outlier analysis, categorizing, clustering, extracting, summarizing, and modeling with data
		Data Visualization	The methods and techniques used to represent data or information as visual objects contained in graphics in order to communicate information more clearly and effectively to different data consumers or audiences
		Reporting and Distribution	The methods by which analytic reports are created, published, and distributed within and external to the organization, e.g., dashboards, static reports, on-demand reporting, ad hoc reports, and other required reports

Analytic Techniques

CATEGORY	SUB-CATEGORY	Level 1	Level 2	Level 3	Level 4	Level 5
Data Preparation and Manipulation	**Organize Structured Data**	Ability to analyze structured data does not exist	Analytic techniques are available to characterize structured data in support of basic descriptive analyses OR advanced analytic techniques are limited to search	Analytic techniques are available to support the development of attributes for exploratory analysis AND additional techniques are considered only to meet reporting needs	Analytic techniques are available to support pattern discovery of multiple structured data fields for on demand application or downstream analyses AND additional techniques are considered regularly in preparation for business needs	Analytic techniques are available to support the broad spectrum of analytics needs AND additional techniques are continuously considered to support the organization's advanced analytics capability over a multi-year time frame
	Organize Unstructured Data	Ability to analyze unstructured data does not exist	Analytic techniques are available to support limited categorization of unstructured data OR techniques are limited to search	Analytic techniques are available to categorize unstructured data to support a variety of applications across multiple domains AND additional techniques are considered only to meet immediate needs	Analytic techniques are available to support downstream analyses (e.g., entity tagging/extraction) and summarization AND additional techniques are considered regularly in preparation for business needs	Analytic techniques for unstructured data are linked to a taxonomy to enhance discoverability AND additional techniques are continuously considered to support the organization's advanced analytics capability over a multi-year time frame
Analytic Tradecraft	**Data Analysis**	Ability to analyze data beyond basic mathematic functions (e.g., sum, percentage) does not exist	Data analysis methods include descriptive analytics, basic methods of discovery, and unsophisticated explanatory analytics	Data analysis methods include discovery analytics AND may include predictive models for structured data (e.g., LDA and Bayesian models) OR advanced statistical methods for explanatory analytics are used (e.g., instrumental variables and differences-in-differences)	Data analysis methods include predictive analytics AND likely include predictive models for unstructured data (e.g., elastic search and natural language processing)	Data analysis methods include prescriptive analytics, use machine learning to develop and train predictive analytic models AND are consistently reviewed for additional capability
	Data Visualization	Visualization techniques do not exist OR are limited and must be reproduced with each iteration	Visualization techniques exist but are subjectively chosen based on user discretion, without consideration for end-user experience	There are multiple automated visualization techniques AND guidance for how to visualize for the end user AND additional techniques are considered only to meet immediate needs	Best practice visualization techniques are recorded in organizational documents and automated in systems AND additional techniques are considered regularly in preparation for business needs	Visualization techniques are comprehensive (technologically and visually) and guidance is provided on their use AND additional techniques are continuously considered to support the organization's advanced analytics capability over a multi-year time frame
	Reporting and Distribution	Reporting and distribution methods do not exist OR are done inconsistently	Analytic reports are created manually in response to requests AND distribution lists are ad hoc	Analytic reports are automatically produced in a standardized method to ensure consistency across the organization AND reports are easily customized and tailored for different distribution lists	Customized, automatic analytic reports are prepared regularly to meet specific business needs for different audiences	Analytic reports are dynamic, access is granted to specified distribution groups, information is customized to meet the audience and there is a continuous review focused on improving efficiency and effectiveness in the process

People

Identifies the set of human capital programs required to develop a talented and capable team of advanced analytics practitioners

CATEGORY	DEFINITION	SUBCATEGORY	DEFINITION
Talent Definition	The identification of required advanced analytics skills, work activities, and position requirements in order to provide the most value to the organization	**Role Definition**	The formalized procedures in place to identify the essential tasks, knowledge, skills, and abilities required of advanced analytics positions within the organization
		Position Requirements	The process of defining the work duties and position qualifications required for advanced analytics roles within the organization and aligning those positions to strategic business objectives
Talent Recruitment	The processes used to acquire and hire high-quality advanced analytics talent by recruiting effectively, improving the external image of advanced analytics for the organization, and building relationships with critical partners to attract advanced analytics talent	**Attracting Talent**	The attraction of high-quality advanced analytics talent by marketing to and engaging those prospective candidates in the recruitment process
		Sourcing Talent	The process by which the ideal characteristics of advanced analytics candidates are determined and recruitment sources (e.g., social media, professional organizations, educational institutions) are prioritized in order to identify, assess, and engage potential advanced analytics candidates
		Hiring Talent	The processes used to move advanced analytics candidates through the hiring process and make informed hiring decisions
Talent Placement	The placement of appropriate advanced analytics talent to support long-term business goals and mitigate workforce risks	**Workforce Planning**	The processes used to determine the advanced analytics staffing requirements (e.g., composition, size, position design) of the organization
		Workforce Management	The processes used to identify and track where the advanced analytics workforce positions and people reside within the organization and outline succession plans for mission-critical advanced analytics positions
		Workforce Design	The approach used to organize the workforce into a cohesive and collaborative organization, designed to improve the overall advanced analytics capability
Talent Development	The targeted programs and plans designed to motivate, shape, and grow the advanced analytics workforce of the future	**Talent Management Strategy**	The goals, objectives, and regular processes for annually prioritizing talent management and human capital efforts in support of a broad advanced analytics capability
		Career Development	The professional learning opportunities (e.g., instructor-led, web-based, rotational assignments, shadowing) offered within the organization to build the advanced analytics skills and capabilities of the existing workforce
		Performance Management	The continuous process by which employees and managers/supervisors work together to plan, monitor, review, and provide ongoing feedback on individual and team performance in support of the organization's advanced analytics goals
		Retention Strategies	The strategies in place targeted toward identifying motivational drivers (e.g., compensation, growth opportunities, rewards) used to engage and retain the advanced analytics workforce

People

Identifies the set of human capital programs required to develop a talented and capable team of advanced analytics practitioners

CATEGORY	SUB-CATEGORY	Level 1	Level 2	Level 3	Level 4	Level 5
Talent Definition	**Role Definition**	No action has been taken to identify the tasks, knowledge skills and abilities for advanced analytics positions	Some informal identification of the tasks, knowledge, skills, and abilities for advanced analytics roles occurs, but on an ad hoc basis	Tasks, knowledge, skills, and abilities for advanced analytics roles have been defined by previous job analyses and have been applied at the organization (i.e. applying OPM's standard job analyses)	Formal identification of the tasks, knowledge, skills, and abilities for advanced analytics roles exists, and they are standardized and customized across the enterprise	A formal job analysis or competency model has been developed for the enterprise itself, is reviewed regularly and refined as the nature of the work changes and continuously informs the organization's overarching talent management strategy
	Position Requirements	The activities and qualifications for advanced analytics positions are developed individually, without connection to broader advanced analytics needs	Methods to define work activities and qualifications for advanced analytics positions exist across the organization but are shared minimally OR applied inconsistently	Standard position descriptions to define work activities and qualifications for advanced analytics positions exist in coordination to broader talent management goals	Position descriptions are normalized but customized and tailored to specific positions to define the work activities and qualifications for the unique role	There is a robust process to create specific position descriptions, including the documentation of the unique requirements for the role, but also linked to and aligned with enterprise-wide qualifications for advanced analytics positions as determined by a job analysis
Talent Recruitment	**Attracting Talent**	No action is taken to attract advanced analytics talent to the organization prior to reception of application	Small, ad hoc efforts have been made to entice advanced analytics candidates OR marketing materials have been developed	Formal efforts exist to engage advanced analytics candidates OR standardized employer branding materials have been developed to interest advanced analytics candidates	Ongoing activities are undertaken to engage advanced analytics candidates in the enterprise recruitment process AND there is a plan for attracting the right candidates	Advanced analytics candidates are consistently engaged with the enterprise through a comprehensive employer brand message AND the strategy for attracting talent is regularly reviewed to identify enhancements
	Sourcing Talent	The organization only becomes aware of candidates after they apply for an existing position	Advanced analytics candidate sourcing occurs irregularly throughout the organization	The organization has an approach for profiling advanced analytics talent and prioritizing sources	A standardized and strategic approach for profiling advanced analytics talent and prioritizing sources exists AND sourcing requirements are collected as part of a regular formal planning activity	A standardized and strategic approach for profiling advanced analytics talent and prioritizing sources exists and is centralized for the enterprise
	Hiring Talent	Advanced analytics talent is hired as needed across the organization, without any coordination or connection to broader talent management efforts	Processes for hiring advanced analytics exist and vary widely across the organization AND candidate hiring criteria are primarily subjective	Formal hiring criteria have been defined and processes for hiring advanced analytics candidates exist, but are not standardized	Processes for hiring advanced analytics candidates exist at the enterprise level, and governance for their use across the enterprise exists	Advanced analytics candidates are hired through an enterprise-wide process to enable efficiencies and resource pooling

People

Identifies the set of human capital programs required to develop a talented and capable team of advanced analytics practitioners

CATEGORY	SUB-CATEGORY	Level 1	Level 2	Level 3	Level 4	Level 5
Talent Placement	**Workforce Planning**	A process to identify the workforce requirements for advanced analytics does not exist	Workforce requirements for advanced analytics are calculated using different methodologies over different time horizons by business units	There is a formal approach to calculate the workforce requirements for advanced analytics practitioners but findings are not consistently reported or used	There is a regular required planning process to identify the organizational workforce requirements for advanced analytics	Governed processes to identify the workforce requirements for advanced analytics exist and continuously inform the overarching enterprise talent management strategy
	Workforce Management	No criteria to identify advanced analytics positions exist AND there is no accounting of the number and type of advanced analytics staff	Advanced analytics positions are inconsistently identified OR are only identified by some business units AND data is not aggregated for the organization	Formal criteria to identify advanced analytics positions exist, but findings are not consistently reported or used	An enterprise-wide hub identifies and tracks advanced analytics positions in coordination with sub-organizations and maintains up-to-date information by enforcing reporting requirements	There is a dedicated team committed to identifying, tracking and managing advanced analytics talent across the enterprise in support of broad workforce development, risk management (succession planning) and the talent management strategy
	Workforce Design	Operating model does not reflect the importance of advanced analytics in the organization	Operating model has been inconsistently designed to support achievement of analytics goals and priorities	Operating model reflects formal workforce design to support the promulgation and use of analytics throughout the organization	The expansion of advanced analytics throughout the organization is a primary consideration for the operating model and the approach is standardized and governed throughout the enterprise	The workforce is structured and designed to operationalize analytics most effectively (use, develop, share, grow) throughout the enterprise and is regularly re-evaluated for enhancement

People

Identifies the set of human capital programs required to develop a talented and capable team of advanced analytics practitioners

CATEGORY	SUB-CATEGORY	Level 1	Level 2	Level 3	Level 4	Level 5
Talent Development	**Talent Management Strategy**	There is no approach to advanced analytics talent management	Advanced analytics talent management objectives exist, but are inconsistent OR are not prioritized appropriately	Advanced analytics talent management goals and objectives exist but are not prioritized against the overarching talent management strategy of the organization	There is an advanced analytics talent management strategy with prioritized goals and objectives AND the organization is actively implementing the strategy	The advanced analytics talent management strategy is the guiding approach for all human resources programs focused on advanced analytics staff AND is reviewed annually to improve as part of advanced analytics workforce development
	Career Development	Career development programs for the advanced analytics workforce do not exist OR individual staff seeking programs must look externally	Training programs for the advanced analytics workforce exist but are limited in nature OR have been identified by business units and are not shared across the organization	Formal career development programs for the advanced analytics workforce exist but are not standardized for specific analytics roles	A formal career path with career development programs for the advanced analytics workforce mapped to specific skill levels exists	Career paths for the advanced analytics workforce exist and are regularly reviewed and enhanced based on emerging learning opportunities
	Performance Management	Performance management processes are not adapted to the unique needs of advanced analytics practitioners	Informal or subjective performance measures and metrics have been created for single advanced analytics positions	Objective performance measures and metrics exist for advanced analytics positions AND are standardized across the organization	Objective performance measures for advanced analytics positions are standardized and enforced across the organization	Objective behavioral and competency-based performance measures and metrics exist for advanced analytics positions and are reviewed and refined as the nature of the work changes
	Retention Strategies	Plans for retaining advanced analytics practitioners do not exist	Engagement and motivation drivers for retention of advanced analytics staff are primarily determined based on intuition or anecdote AND limited action has been taken to retain advanced analytics practitioners	Engagement and motivation drivers have been identified with research and best practices AND the organization has developed retention plans to address the unique profile of advanced analytics practitioners	Engagement and motivation drivers have been identified using a formal process (e.g., survey, attrition data) AND are required to be used to create enterprise retention plans for advanced analytics practitioners	Engagement and motivation drivers are used to inform retention programs, enterprise-wide policies, and the overarching enterprise advanced analytics talent management strategy

Technology		Identifies the optimal ways to leverage new and existing technologies including applications, data platforms and infrastructure to perform advanced analytics projects	

CATEGORY	DEFINITION	SUBCATEGORY	DEFINITION
Planning and Development	The process for planning, developing, procuring, implementing, and maintaining advanced analytics technology	**Analytics Technology Strategy**	The processes to establish and refine an enterprise-wide mission, goals, action plans, roles and responsibilities, and budget priorities for advanced analytics technology
		Planning Review	The assessment of current state and future needs for advanced analytics technology, the identification of gaps, and recommendation of areas for improved integration, development and maintenance
		Technology Research	The processes for conducting research and development activities into technologies to support the enhancement of the organization's advanced analytics capabilities
		Internal Development	The lifecycle processes to develop tools internally to support analytic tradecraft within the organization
		Purchasing New Tools	The processes to test, vet and purchase new/updated tools and packages to grow the organization's advanced analytics capabilities within the framework of the organization's procurement process
		Implementation/Deployment	The release of fully vetted internal tools, including enhancements to existing tools, and externally procured software and hardware to the organization
		Maintenance/Support	The continuous support of current tools, infrastructure, and processes to identify and make incremental improvements to those tools
Infrastructure	The foundational layer of an advanced analytics solution to allow for a secure, low-risk deployment of servers and hosting services	**Physical Resources**	The technical requirements and enterprise-wide architectural framework associated with modeling, storing, delivering and integrating data into downstream systems
		Resource Abstraction	Enterprise-wide resource abstraction (e.g. virtual machines and data storage deployment) allows advanced analytics practitioners more individual control of their software configurations, without dividing the physical hardware (e.g., allowing multiple virtual connections to a cluster of machines)
		Core Services	The publication, promotion and oversight of enterprise-level application program interfaces (API) in a secure, scalable environment which support a single point of access for users to the data stores
Data Management	The secure repository for data of all types and origins, making them available for a wide breadth of analyses	**Data Repository**	The repository that integrates all data regardless of schema, taxonomy, or data type/format where individual data sets can be secured granularly
		Data Sources	The combination of data from a heterogeneous set of data stores to create one unified view of all that data
Analytics Services and Interaction	The advanced analytics technologies used to unlock the value of data to generate business insights that were not previously recognized	**Analytics Services**	The technological services which, when enabled by a tool, provides the capability to conduct specific analysis, modeling, testing, and simulations needed for decision making
		Tools and Software	The set of tools which provide end-users with access to a variety of shared technology and services which connect to and manage the data stores
Human Insights and Actions	Visualizations and interfaces which can be used to synthesize and communicate the organization's data	**Visualization Tools**	The tools which enable the development of dashboards and graphics to communicate the results of the advanced analytics
		Interfaces	The interactive tools which provide dynamic interaction between users and advanced analytics tools

Technology

CATEGORY	SUB-CATEGORY	Level 1	Level 2	Level 3	Level 4	Level 5
Planning and Development	**Analytics Technology Strategy**	An enterprise analytics technology strategy does not exist for the technology required to support advanced analytics	An initial draft enterprise strategy for analytics technology is identified on an ad hoc basis OR in support of immediate business needs	A formal enterprise strategy for analytics technology has been established and goals/objectives are defined regularly in support of business needs	An enterprise analytics technology strategy is regularly defined and developed, complete with prioritized goals/objectives and action plans to support implementation.	The formal enterprise strategy along with individual goals and objectives (reviewed/refined annually) are prioritized against the overarching technology strategy AND action plans are continuously monitored to identify improvements and increase efficiencies
	Planning Review	Advanced analytics technology planning review processes do not exist	Advanced analytics technology needs assessments occur in conjunction with immediate needs (external requests) AND there is no formal process to conduct a gap analysis	Advanced analytics technology needs assessment and a formal gap analysis occur regularly	Advanced analytics technology planning review processes are integrated into advanced analytics programs	Advanced analytics technology planning review processes are reviewed and revised regularly as part of a multi-year planning process
	Technology Research	Processes to support research into advanced analytics technology do not exist	Research into advanced analytics technology is conducted in response to immediate needs	Research into advanced analytics technology occurs as part of a formal process and various tools are identified to support project needs	Research into advanced analytics technology is integrated into the IT investment process and identified tools are approved for integration	Research processes and tools are regularly reviewed and revised as needed
	Internal Development	IT processes do not account for development of advanced analytic tools	Development of advanced analytics tools occurs ad hoc, outside of established IT SDLC processes OR occurs to meet immediate needs	Established SDLC processes have been standardized to include the requirements and design needs specific to advanced analytics tools	Development testing and review processes are created specific to the needs of advanced analytics tools	Established SDLC processes are reviewed regularly and revised as-needed to specifically support advanced analytics tools
	Purchasing New Tools	Processes to support the selection and purchase of advanced analytics tools do not exist	Selection processes to vet new advanced analytics tools occur outside the framework of IT investment process to meet immediate needs	An enterprise-standard selection process to vet and test new advanced analytics tools for purchase exists (e.g., sandbox)	Governed enterprise-level selection processes to vet and test new advanced analytics tools exist	Enterprise selection process to vet new advanced analytics tools is reviewed and refined regularly. Buying process is integrated with capital planning, uniting business requirements
	Implementation/ Deployment	Implementation/deployment plans for advanced analytics tools do not exist	Implementation/deployment plans for advanced analytics tools are developed on an as needed basis OR are applied inconsistently	A standardized implementation/ deployment plan for advanced analytics tools exists and includes processes for accessibility	A governed implementation/deployment plan incorporates processes for provisioning to ensure platform can support new tools	Implementation/deployment plans for advanced analytics tools are reviewed and revised as needed
	Maintenance/ Support	Processes for the maintenance/support of advanced analytics tools do not exist	There is no consistent process to manage licenses for advanced analytics software OR process is inconsistent across the enterprise OR monitoring of software and tools occurs only in response to immediate needs (e.g., external events)	A formal enterprise-wide process for managing distribution of advanced analytics software and tools and a copyright use policy is in place alongside continuous monitoring of software and tools	Copyright and acceptable use policy are governed for advanced analytics tools, and an enterprise-wide process is established to ensure users have access to latest updates	Enterprise-wide update processes are in place, including processes for decommissioning tools AND all maintenance and support activities are reviewed and revised as needed

		Technology		Identifies the optimal ways to leverage new and existing technologies including applications, data platforms and infrastructure to perform advanced analytics projects		

CATEGORY	SUB-CATEGORY	Level 1	Level 2	Level 3	Level 4	Level 5
Infrastructure	**Physical Resources**	Enterprise-wide physical resources do not support advanced analytics activities	Enterprise-wide physical resources reflect an architectural framework that is developed to respond to immediate needs	Enterprise-wide physical resources reflect a standardized architectural framework includes technical requirements	Enterprise-wide physical resources are in place with governed architecture framework and is optimized to support advanced analytics	Scalable enterprise-wide architectural framework is reviewed and revised as needed to plan for longer term technology needs
	Resource Abstraction	Resource abstraction does not consider advanced analytics needs	Resource abstraction is provisioned as needed per use case OR are being used inconsistently across the enterprise	Resource abstraction has been orchestrated as per enterprise-wide architectural solution stipulations that adhere to security policies	Resource abstraction has been standardized across the enterprise with a consistent rollout process, and is monitored for performance	An architectural framework for resource abstraction is maintained and improved over a long term period following corresponding physical resource revisions, allowing for resource elasticity
	Core Services	Enterprise-wide API management processes do not exist	Enterprise-wide API management only occurs in response to immediate needs, with very little functionality offered through the API	Formal enterprise API management processes utilize SOA and an open API framework; some common functionality is offered through the API	Governed enterprise API management processes allow all common functionality to be offered through the API	The enterprise-wide API management framework is reviewed and refined as needed to plan for needs over a multi-year period
Data Management	**Data Repository**	Data repository design do not consider advanced analytics needs	Data repository supports ingest and basic querying across a limited set of systems and databases	Data repository supports ingest, security tags and querying for all systems and databases	Data repository supports distributed storage and processes to keep data up to date	Data repository supports querying of data in real time, and is reviewed and revised to plan for data needs over a multi-year period
	Data Sources	Processes for data integration are not available for any data types	Processes to integrate data are available for a limited set of data sources are created in response to immediate needs	Standardized processes for data integration are available for most types of data sources	Governed processes for data integration are available for all types of data sources	Data integration processes are reviewed and revised as needed to plan for data needs over a multi-year period
Analytics Services and Interaction	**Analytics Services**	Analytics services do not support any level of advanced analytics investigation	Analytics services are able to support descriptive, basic discovery, and unsophisticated explanatory analytics	Analytics services are available to support discovery and explanatory analytics	Analytics services are available to support predictive analytics	Analytics services are available to support prescriptive analytics
	Tools and Software	Tools to support interaction with data do not consider advanced analytics needs	COTS tools exist to support interaction with data for advanced analytics practitioners	Open source and search tools exist to support interaction with data by advanced analytics practitioners	User interaction tools are able to support all interested users who are trained in the tools	User interaction tools are able to support all staff with minimal training required
Human Insights and Actions	**Visualization Tools**	Visualization tools do not consider advanced analytics needs	Initial tools (may not be sophisticated) are identified to create visualizations for some advanced analytics artifacts	Sophisticated visualization tools are identified and integrated as part of the overall architecture. Customized reporting tools are developed and reused for each reporting type.	Customized reports are dynamically created using the sophisticated visualization tools for specific advanced analytics artifacts	Using the integrated tools, customized reports are dynamically created for each advanced analytics artifact, and visualization processes and tool sets are continuously reviewed and refined
	Interfaces	Existing interfaces do not support interaction with advanced analytics tools	Interfaces exist to monitor the results from advanced analytics tools	Interfaces exist to provide users alerts based on the results of advanced analytics tools	Interfaces are in place to provide dynamic reporting from advanced analytics artifacts to provide information on key performance indicators for the organization	Interfaces are available to conduct exploratory analyses based on the results of advanced analytics artifacts

Culture

Identifies the set of organizational mechanisms that reinforce, communicate, and share the importance of advanced analytics to support evidence based decision making

CATEGORY	DEFINITION	SUBCATEGORY	DEFINITION
Engagement	The communications and organizational techniques which drive workforce engagement in advanced analytics, build momentum for advanced analytics, and recognize staff for using and leveraging analytics	**Communications**	Regular exchange of information within an organization to discuss and share analytic insights through a variety of channels
		Marketing and Branding	The approach and language used to convey specific meaning, promote adoption of advanced analytics and build awareness for analytics resources
		Leadership	The level to which leadership is engaged and supportive of the value of advanced analytics and actively progressing the goal for evidence-based decision making
		Recognition	The specific organizational programs which recognize the employees that engage with, create and actively use advanced analytics
Organizational Enablers	The organizational programs and structures that support and nurture advanced analytics throughout the organization, such as cross-business teams, town hall meetings, and networking events	**Structural Mechanisms**	The organizational design mechanisms available to promote analytics throughout the organization (e.g., issue teams, reporting relationships)
		Policies and Procedures	The principles, rules and guidelines formulated or adopted by the organization in order to achieve evidence-based decision making
		Community	The group of staff within the organization that self-identify an interest in advanced analytics and join together in support of a broader collective goal of growing knowledge of, and sharing best practices in, advanced analytics
		Learning	The specific events and knowledge management platforms harnessed to identify, use and share advanced analytics knowledge to all staff in an effort to develop the organization's capability in advanced analytics

Culture

CATEGORY	SUB-CATEGORY	Level 1	Level 2	Level 3	Level 4	Level 5
Engagement	Communications	There are no communications focused on advanced analytics	Communications on the subject of advanced analytics exist but are irregular and distribution is limited	There are formal communications on the subject of advanced analytics but messages are sent to meet one-time needs	A comprehensive communications plan is being implemented to include a schedule for communications, performance measures, and analysis of stakeholder groups	There is a dedicated advanced analytics communications strategy aligned to broader organizational communications, tailored to specific stakeholder groups and reviewed regularly for enhancements
	Marketing and Branding	No marketing for advanced analytics exists	Basic advanced analytics marketing exists OR advanced analytics is being marketed inconsistently OR were only developed to deliver a single message (e.g., establishment of a new division)	Formal marketing on the value of advanced analytics exists OR advanced analytics marketing is attempting to reach all customers with a single message	An enterprise-wide advanced analytics marketing plan to reach all customer segments (as determined through a customer segmentation analysis) exists and is being implemented	Targeted and specific marketing to each customer segment has been developed and is used to drive engagement with specific workforce groups to optimize advanced analytics marketing for the enterprise
	Leadership	Announcements demonstrating leadership commitment to analytics have not occurred	There have been ad hoc announcements across the organization from leaders sharing their commitment to analytics AND leaders have begun to use analytics inconsistently	There is an ongoing leadership initiative to increase analytics adoption which has been formally shared across the organization AND leaders are using analytics more regularly for decision-making	Leadership is expected to contribute to advanced analytics capability by reinforcing and demonstrating a commitment to using data and making evidence-based decisions	Leadership is reinforcing the value of advanced analytics in all activities and ongoing business operations and consistently identifies ways to increase adoption in ordinary business tasks
	Recognition	There are no organizational opportunities for recognizing the use of advanced analytics	There is ad hoc recognition for using advanced analytics OR recognition is not aligned to desired behavior	Formal recognition for using advanced analytics exists as part of an informal plan to increase staff adoption	Adoption of advanced analytics has been included in the performance goals for the organization	The adoption of advanced analytics throughout the organization is measured regularly and action plans are modified and enhanced as needed

Culture	Identifies the set of organizational mechanisms that reinforce, communicate, and share the importance of advanced analytics to support evidence based decision making

CATEGORY	SUB-CATEGORY	Level 1	Level 2	Level 3	Level 4	Level 5
Organizational Enablers	**Structural Mechanisms**	No organizational structures exist to support advanced analytics	Ad hoc organizational structures (e.g., cross-organization issue teams) have been created to support the use of advanced analytics OR teams have developed informal structures	The organization has formal structural mechanisms which support the use of analytics (e.g., cross-organization analytic validation or project sponsorship)	The organization has implemented structural mechanisms to coordinate the use of analytics (e.g., dedicated analytics representative within each sub-organization)	An enterprise-wide formal functional design to support the use of advanced analytics exists, and is reviewed regularly
	Policies and Procedures	Policies and procedures supporting the promulgation and use of analytics in the organization do not exist	Policies and procedures have been updated to address the need for advanced analytics in some parts of the organization OR only some policies and procedures have been updated for advanced analytics	The organization has incorporated the need for data driven analysis in formal policies and procedures	Policies and procedures on advanced analytics are governed to ensure appropriate development, use, and decision-making with advanced analytics	Guidebooks, toolkits and other supporting documents have been developed to demonstrate the integration of advanced analytics policies and procedures into ongoing operations
	Community	There is no community of advanced analytics practitioners	Multiple small communities of advanced analytics practitioners exist OR minimal actions have been taken to self-identify and gather	A self-organized, community for advanced analytics practitioners exists	There is an established and documented community of interest for advanced analytics with regular events and activities	The community of interest has a vision and mission for improving the organization's advanced analytics capability through a series of community based programs and events
	Learning	There are no channels OR methods to learn about advanced analytics in the organization	Advanced analytics learning opportunities must be identified at the individual level OR distribution of organizational knowledge (best practices) is limited	Formal learning opportunities (e.g., knowledge management sites, guidance documents, toolkits) in the area of advanced analytics exist, but are not standardized	Standard and accessible advanced analytics learning opportunities exist and are supported by a learning strategy to improve the capability across the organization	Advanced analytics learning opportunities exists as part of a formal knowledge management program supported by peer development and regularly reviewed for enhancement